

ATTACHMENT 32

13 CONFIDENTIAL INFORMATION UNDER THE PROTECTIVE ORDER

15 VIDEOTAPED DEPOSITION OF ANTHONY J. LI
16 Palo Alto, CA
17 Monday, February 1, 2016
18 Volume I

21 Reported by: SUSAN F. MAGEE, RPR, CCRR, CLR
22 CSR No. 11661
23 JOB No. 2224600
24
25 PAGES 1-258

Page 1

<p>1 A. 1990.</p> <p>2 Q. And the USC you're referring to, that's the 3 University of Southern California; correct?</p> <p>4 A. Correct.</p> <p>5 Q. Do you have any other degrees besides the 09:19:58 6 bachelor's degree and your Ph.D.?</p> <p>7 A. No.</p> <p>8 Q. Your LinkedIn profile marked as Exhibit 136 9 states that you attended Rutgers University; is that 10 correct? 09:20:20</p> <p>11 A. I spent one year at Rutgers. Did not get a 12 degree there.</p> <p>13 Q. Was your focus at the University of 14 Southern California on anything in particular?</p> <p>15 A. I was working on a Ph.D. in computer 09:20:31 16 science in the programming languages area.</p> <p>17 Q. What programming languages were you working 18 on.</p> <p>19 A. So it was not a specific language. It was 20 in language theory, and in particular I was working 09:20:47 21 on compiler specifications.</p> <p>22 Q. What routing protocols, if any, did you 23 learn about as part of obtaining your Ph.D. at USC?</p> <p>24 A. None; however, as a postdoc at USC, I 25 actually worked on IDPR, Inter-Domain Policy 09:21:13</p>	<p>1 A. EGP is a routing protocol that allows 2 individual hosts to advertise routing prefixes to 3 the gateways of the then ARPANET or MILNET.</p> <p>4 Q. Is EGP a standardized routing protocol?</p> <p>5 A. Yes, it is. 09:23:29</p> <p>6 Q. How do you know that?</p> <p>7 A. I've read the RFC.</p> <p>8 Q. What is an RFC, Mr. Li?</p> <p>9 A. It is a Request For Comments that is a 10 document from the Internet Engineering Task Force, 09:23:41 11 IETF, that they use for standardizing protocols.</p> <p>12 I'm unaware of the exact standards placement of -- 13 or progression of EGP at this time. It's probably 14 moved to historic by now.</p> <p>15 Q. When you say it's "moved to historic by 09:24:01 16 now," what do you mean by that?</p> <p>17 A. So the IETF has a progression for 18 standards, and standards that are no longer actively 19 used or recommended are moved to historic to 20 indicate that they are no longer productive. 09:24:19</p> <p>21 Q. You also mentioned IGRP. Can you describe 22 to me what IGRP is.</p> <p>23 A. IGRP is Cisco's proprietary classful 24 protocol.</p> <p>25 Q. When you say Cisco proprietary, what do you 09:24:40 Page 16</p>
<p>1 Routing.</p> <p>2 Q. Inter-Domain Policy Routing?</p> <p>3 A. Correct. Also, while I was assist admin at 4 USC, I was a network administrator, so I had 5 familiarity there with EGP and IGRP. 09:21:41</p> <p>6 Q. What is EGP?</p> <p>7 A. Exterior Gateway Protocol.</p> <p>8 Q. And what is IGRP?</p> <p>9 A. Interior Gateway Routing Protocol.</p> <p>10 Q. You mentioned IDPR as part of your postdoc 09:22:06 11 work; correct?</p> <p>12 A. Correct.</p> <p>13 Q. Can you describe for me how you worked with 14 IDPR in your postdoc work at USC.</p> <p>15 A. So I was working for Deborah Estrin, and 09:22:24 16 she was collaborating with Martha Steenstrup of 17 Bolt, Beranek & Newman in Boston. They was a -- 18 they had some sort of research contract to develop a 19 routing protocol that supported policy routing.</p> <p>20 Q. Was IDPR a proprietary standard? 09:22:43</p> <p>21 A. I have no idea.</p> <p>22 Q. You said you worked at -- you worked on EGP 23 while as a sys admin at USC; is that correct?</p> <p>24 A. That's correct.</p> <p>25 Q. What is EGP? 09:23:07</p>	<p>1 mean by that?</p> <p>2 A. Cisco owns the code, has a patent on the -- 3 or on the concepts behind the implementation, and as 4 far as I know, has not licensed it with the 5 exception of licensing their whole source code 09:24:58</p> <p>6 stack.</p> <p>7 Q. How did you work with EGP while you were a 8 sys admin?</p> <p>9 A. So I was responsible for maintaining EGP 10 connectivity between USC's site and the ARPANET core 09:25:11 11 gateways.</p> <p>12 Q. And what was your experience as a sys admin 13 working with IGRP?</p> <p>14 A. So I was maintaining the Los Nettos Network 15 which was a small regional network in Los Angeles. 09:25:24 16 We used IGRP for routing between the sites and our 17 small network.</p> <p>18 Q. And what period of time were you a sys 19 admin for USC?</p> <p>20 A. Approximately 1983 through 1990. 09:25:36</p> <p>21 Q. Besides IDPR, EGP and IGRP, did you work 22 with any other routing protocols while you were 23 either obtaining your Ph.D. or serving as a postdoc?</p> <p>24 A. Probably. So I do not recall the details, 25 but I do know that we had also a DECnet network, and 09:26:12 Page 17</p>

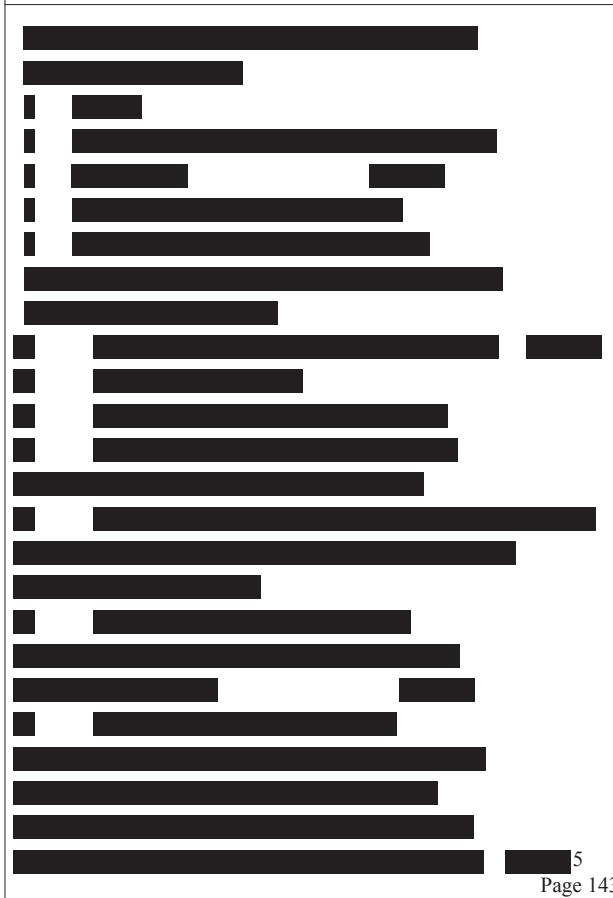
<p>1 I believe that DECnet routing was involved, and that 2 is a -- uses an internal routing protocol that is 3 very simple -- similar to RIP. 4 Q. Now, you said DECnet. What is DECnet? 5 A. DECnet was a proprietary networking stack 09:26:36 6 from Digital Equipment Corporation. 7 Q. So the DEC in DECnet stands for 8 Digital Equipment Corporation? 9 A. Yes. 10 Q. When you say "we also had a DECnet 09:26:56 11 network," who is "we"? 12 A. I was referring to my employers at USC, in 13 particular engineering computer services which then 14 became university computing services. 15 Q. What experience did you have working with 09:27:20 16 the DECnet network at USC? 17 A. Mostly it was frustrating. The DECNet 18 network was interconnecting the router -- the 19 various hosts around the campus, allowing students 20 and faculty to move data around between the various 09:27:36 21 computers. 22 Q. What was the operating system like on the 23 DECnet network? 24 A. So we had multiple systems speaking DECnet. 25 There were many VAXes running the VMS operating 09:27:54</p>	<p>1 A. I do. 2 Q. What is a command line interface? 3 A. A command line interface is a means for a 4 user to enter commands typing out names of words and 5 then interacting with a computer by having the 09:29:50 6 computer respond to those words. 7 Q. If I use the term "CLI," will you 8 understand that I'm referring to a command line 9 interface? 10 A. I understand. 09:30:06 11 Q. Did the VAX/VMS operating system have a 12 command line interface? 13 A. It did. 14 Q. Can you describe for me generally how the 15 VAX/VMS command line interface worked. 09:30:17 16 A. It was a very standard command-and-response 17 interface. Predominant were set and show. Change 18 parameters and then display parameters. 19 Q. When you say "very standard 20 command-and-response interface," what do you mean by 09:30:39 21 "very standard"? 22 A. So very similar to other things in the 23 industry. 24 Q. At that time? 25 A. Yes. 09:30:50</p>
<p>Page 18</p> <p>1 system. We also had several systems running 2 TOPS-20. 3 Q. You said VAX/VMS. Does that stand for 4 anything? 5 A. VAX is virtual address extension. VMS is 09:28:15 6 virtual memory system. 7 Q. How much experience did you have working 8 with the VAX/VMS operating system? 9 A. I was a system administrator for several 10 years while at USC. 09:28:36 11 Q. And how many years of experience did you 12 have working with the TOPS-20 operating system? 13 A. I was only a user of TOPS-20. I got my 14 first TOPS-20 account in 1982. I probably used 15 that -- well, at least eight years, so . . . 09:29:03 16 Q. So as a user, you used TOPS-20 for 17 approximately eight years? 18 A. Yes. 19 Q. And approximately how many years did you 20 work as a system administer [sic] for the VAX/VMS 09:29:17 21 operating system? 22 A. I'm not certain. I believe it was 23 approximately 1983 through about 1987. 24 Q. Mr. Li, do you know what a command line 25 interface is? 09:29:40</p>	<p>Page 20</p> <p>1 Q. And approximately what time period are we 2 talking about, Mr. Li? 3 A. The first time I saw VMS was '81. 4 Q. You mentioned that set and show commands 5 were predominant in VAX/VMS; correct? 09:31:13 6 A. Mm-hmm. 7 Q. Were there any other commands that you 8 recall from using the VAX/VMS command line 9 interface? 10 A. There were many other commands, and you 09:31:25 11 could easily extend it by adding additional commands 12 to it, so . . . 13 Q. How would you extend it by adding 14 additional commands to it? 15 A. So the entire operating system CLI was 09:31:39 16 built around what was called DCL, digital command 17 language. You so actually write command definitions 18 and add those to the CLI. 19 Q. Were you familiar with digital command 20 language at the time? 09:32:00 21 A. Slightly. 22 Q. Did the show commands in VAX/VMS follow any 23 particular syntax? 24 A. Yes. They typically were invoked by show 25 and then usually an object name and then a set of 09:32:16 Page 21</p>

6 (Pages 18 - 21)

<p>1 parameters. The parameters were delineated by a 2 slash and then parameter name. Sometimes there was 3 a value attached with an equal sign and then a value 4 attached to a given parameter. The set commands 5 were pretty much the same way. 09:32:39</p> <p>6 Q. Now, you said, "typically were invoked" was 7 part of your answer about how show commands worked. 8 Were there any exceptions to the syntax you 9 just described?</p> <p>10 A. Well, that was very much a generalization, 09:32:58 11 so yes.</p> <p>12 Q. What was the command syntax like for 13 TOPS-20?</p> <p>14 A. TOPS-20 had a command syntax that was 15 somewhat similar to VMS. The notable difference was 09:33:22 16 that TOPS-20 allowed for a command completion, and 17 so you could use escape and tab and question mark 18 characters to interact directly with the command 19 line interpreter while you were typing a command 20 line. 09:33:42</p> <p>21 Q. What type -- what time period are you 22 talking about here, Mr. Li?</p> <p>23 A. I am unaware of when TOPS-20 first came 24 out.</p> <p>25 Q. At what time period were you working with 09:33:54</p>	<p>1 feature while you were working with TOPS-20? 2 A. Yes. 3 Q. Is the recollection you just described 4 based upon your hands-on experience with TOPS-20? 5 A. Yes, it is. 09:35:27</p> <p>6 Q. Now, you said TOPS-20 had a similar syntax 7 to VMS. 8 What was similar about the TOPS-20 command 9 syntax to the VAX/VMA command syntax? 10 A. Again, the general intent of -- or design 09:35:58 11 of the -- in the language was an imperative language 12 where they would design it as verb and then noun, 13 noun. So you would give the command as SHO and then 14 some parameters to go with it. 15 The details of the syntax were definitely 09:36:23 16 different. TOPS-20 in particular never used a slash 17 as a parameter separator. 18 Q. Now, you've used the word "parameter" to 19 describe the syntax for both VAX/VMS and TOPS-20? 20 A. Mm-hmm. 09:36:46</p> <p>21 Q. What do you mean by a parameter? 22 A. It's a qualifier or other conditional 23 information about the specific request. 24 Q. Can you give me an example of what would be 25 a command parameter? 09:36:56</p>
<p>Page 22</p> <p>1 TOPS-20?</p> <p>2 A. Again, I got my first TOPS-20 account in 3 1982.</p> <p>4 Q. Okay. So these features you just 5 described, command completion, were those in TOPS-20 09:34:05 6 when you first got your account in 1982?</p> <p>7 A. Yes.</p> <p>8 Q. What is command completion?</p> <p>9 A. Command completion is the ability for the 10 command line interpreter to infer from what the user 09:34:25 11 has typed as a partial command and then actually 12 have it type out the rest of the command for the 13 user.</p> <p>14 Q. Can you give me an example of how command 15 completion would work in a TOPS-20 command line 09:34:41 16 interface.</p> <p>17 A. Oh, dear. So not accurately.</p> <p>18 Approximately, you would type a partial command. So 19 for example, if you were to type "SHO," S-H-O, and 20 then complete it, you would get the W and then a 09:34:58 21 space, so you could then enter a parameter.</p> <p>22 MR. PAK: I'm going to object that this 23 calls for expert testimony. Speculation.</p> <p>24 BY MR. WONG: Q. Mr. Li, did you use the 25 command -- did you use the command completion 09:35:17</p>	<p>Page 24</p> <p>1 A. For example, if the database of files had a 2 set of file names, you could give a directory 3 command which would show the files in the directory. 4 Then you could also give directory followed by a 5 parameter which would explain -- which would specify 09:37:17 6 some subset of the files that you would like to see. 7 Q. Besides VAX/VMS and TOPS-20, did you have 8 experience with any other command line interfaces? 9 A. Many.</p> <p>10 Q. Okay. What other command line interfaces 09:37:43 11 do you have experience with, Mr. Li?</p> <p>12 A. That could take a while. CPM, VMCMS. 13 Let's see. Concurrent CPM, MS-DOS, RSX-11M. 14 Probably many others.</p> <p>15 Q. Which of those existed prior to 1985? 09:38:15</p> <p>16 A. All of those.</p> <p>17 Q. Did any of those exist prior to 1980?</p> <p>18 A. Yes, very definitely. Let's see. UNIX 19 already existed. There was a CLI there. I believe 20 that CPM predates 1980. 09:38:38</p> <p>21 Q. And did you work directly with all of the 22 command line interfaces that you just recited?</p> <p>23 A. Yes.</p> <p>24 Q. In what capacity did you work with those 25 command line interfaces? 09:39:02</p>

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<p>1 BY MR. WONG: Q. You also worked at 2 Juniper; correct? 3 A. Yes, I did. 4 Q. What were the similarities or differences 5 between how Juniper would provide training to its 01:22:37 6 customers' engineers on how to use Juniper's command 7 line interface as compared to Cisco's approach? 8 A. I was less involved in Juniper, but I 9 believe that they did largely the same thing. 10 Q. What's the basis for that belief? 01:22:55 11 A. That's what I saw going on in the hallways, 12 so . . . 13 Q. Did Procket Networks provide training to 14 the engineers of its customers? 15 A. Yes, very much so. We did exactly the same 01:23:07 16 thing. A lot of in-house training, a lot of 17 external documentation. 18 Q. And in -- so at all three of those vendors 19 that you worked for, the customers would pay the 20 vendor either directly or indirectly to provide 01:23:28 21 training to their engineers; correct? 22 A. Yes. 23 MR. PAK: Objection. Calls for 24 speculation. 25 BY MR. WONG: Q. And you know that because 01:23:36 Page 142 </p>	<p>1 this e-mail. 2 A. Okay. 3 Q. Please take a moment to take a look at the 4 e-mail in Exhibit 144. 5 A. Mm-hmm. 01:25:26 6 Q. And the e-mail address on this e-mail, one 7 of the e-mails is tli@cisco.com. 8 Do you see that? 9 A. Yes. 10 Q. Is that your e-mail address? 01:25:36 11 A. Yes. Or was. 12 Q. Was that -- 13 A. Was at the time, yes. 14 Q. And who is Peter Lothberg? 15 A. That's a complicated answer. Peter was a 01:25:47 16 contractor. As of 1992, I believe he was reporting 17 to the International Connection Manager Project that 18 was under contract to Sprint from NSF.  </p>
	 <p style="text-align: right;">Page 144</p>

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The figure consists of two columns of horizontal bars, each representing a row of data. The left column has approximately 25 rows, and the right column has approximately 20 rows. Each row is composed of several thick black horizontal bars of varying lengths. Some rows begin with small black squares or rectangles before the main bar sequence. The bars are set against a white background.

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The image shows a large grid of blacked-out redacted text. The grid consists of approximately 20 rows and 20 columns. Each cell in the grid contains either a single character or a short sequence of characters, all of which have been completely obscured by a uniform black color. This redaction covers most of the page content.

25 MR. PAK: Objection. Objection. Vague. 01:32:59

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1 industry?

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01:45:12

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1 standards organization like IETF?	1 THE VIDEOGRAPHER: Okay. This marks the
2 A. I have never seen anyone do that. I have	2 end of DVD No. 4 in the deposition of Anthony Li.
3 never seen Cisco have any UI patents; so I don't	3 Going off the record. The time is 4:17. 04:17:29
4 understand.	4 (TIME NOTED: 4:17 p.m.)
5 Q. Mr. Li, is there any other views or 04:15:36	5 --00o--
6 opinions that you have with respect to this case	6
7 that you have not shared with us on the record that	7
8 you would like to share with us now?	8
9 MR. WONG: Objection. Vague.	9
10 THE WITNESS: I don't understand your 04:15:55	10
11 question.	11
12 BY MR. PAK: Q. We talked about a lot of	12
13 different topics. I'm giving you the opportunity to	13
14 provide any further testimony that you would like on	14
15 any of these topics if you'd like it. 04:16:05	15
16 A. So I don't understand what intellectual	16
17 property people think there is in some CLI syntax.	17
18 The intellectual property is -- that's of	18
19 significance gets covered in patents. If we thought	19
20 it was worth protecting, we would copyright it. We 04:16:22	20
21 would patent it.	21
22 MR. WONG: Object to the form of the	22
23 question.	23
24 BY MR. PAK: Q. Do you believe that	24
25 copyright is a form of intellectual property? 04:16:34	25
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Page 256	
1 MR. WONG: Objection. Calls for opinion	1 I, ANTHONY J. LI, do hereby declare under
2 testimony.	2 penalty of perjury that I have read the foregoing
3 THE WITNESS: It calls for legal testimony.	3 transcript; that I have made any corrections as appear
4 I don't understand.	4 noted, in ink, initialed by me, or attached hereto; that
5 BY MR. PAK: Q. What is your understanding 04:16:44	5 my testimony as contained herein, as corrected, is true
6 of copyright law?	6 and correct.
7 MR. WONG: Same objection.	7 Executed this _____ day of _____,
8 THE WITNESS: Vague as best.	8 2016, at _____, _____.
9 BY MR. PAK: Q. I take it, sir, that you	9 (city) (state)
10 haven't analyzed any copyright laws relating to 04:16:56	10
11 interface, APIs, user interfaces?	11
12 A. I know that I'm supposed to put a copyright	12
13 notice in the top of every source code file. That's	13
14 about all I know.	14
15 Q. Okay. 04:17:08	15 _____
16 A. I can't even tell you for certain what I'm	16 ANTHONY J. LI
17 supposed to put in the top of the file because	17
18 nobody can tell me exactly how I should deal with	18
19 multiple years.	19
20 MR. PAK: Thank you. Sir, I think those 04:17:18	20
21 are the questions I have for you today.	21
22 MR. WONG: I have no further questions.	22
23 ////	23
24	24
25	25
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1 I, the undersigned, a Certified Shorthand
2 Reporter of the State of California, do hereby
3 certify:
4 That the foregoing proceedings were taken
5 before me at the time and place herein set forth;
6 that any witnesses in the foregoing proceedings,
7 prior to testifying, were administered an oath; that
8 a record of the proceedings was made by me using
9 machine shorthand which was thereafter transcribed
10 under my direction; that the foregoing transcript is
11 a true record of the testimony given.

12 Further, that if the foregoing pertains to
13 the original transcript of a deposition in a Federal
14 Case, before completion of the proceedings, review
15 of the transcript [X] was [] was not requested.

16 I further certify I am neither financially
17 interested in the action nor a relative or employee
18 of any attorney or any party to this action.

19 IN WITNESS WHEREOF, I have this date
20 subscribed my name.

21 Dated: February 3, 2016

22

23

24 
Susan F. Magee
25 CSR No. 11661, RPR, CCRR, CLR

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Page 1

UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA
SAN JOSE DIVISION

CISCO SYSTEMS, INC.,)
)
Plaintiff,)
) Case No.
vs.) 5:14-cv-05344-BLF (PSG)
)
ARISTA NETWORKS, INC.,)
)
Defendant.)

HIGHLY CONFIDENTIAL - ATTORNEYS' EYES ONLY

VIDEOTAPED DEPOSITION OF KIRK LOUGHEED
Palo Alto, California
Friday, November 20, 2015
Volume I

Reported by:
CARLA SOARES
CSR No. 5908
Job No. 2187110
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UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA
SAN JOSE DIVISION

CISCO SYSTEMS, INC.,)
)
Plaintiff,)
) Case No.
vs.) 5:14-cv-05344-BLF (PSG)
)
ARISTA NETWORKS, INC.,)
)
Defendant.)

VIDEOTAPED DEPOSITION OF KIRK LOUGHEED,
Volume I, taken on behalf of Defendant, at
650 Page Mill Road, Palo Alto, California, beginning
at 9:19 a.m., and ending at 6:15 p.m., on Friday,
November 20, 2015, before CARLA SOARES, Certified
Shorthand Reporter No. 5908.

Page 3

1 APPEARANCES:

2
3 For the Plaintiff and the Witness:
4 QUINN EMANUEL URQUHART & SULLIVAN, LLP
5 BY: JOHN (JAY) NEUKOM, Attorney at Law
6 50 California Street, 22nd Floor
7 San Francisco, California 94111
8 415.875.6341
9 johnneukom@quinnemanuel.com
10 and
11 KIRKLAND & ELLIS LLP
12 BY: JOSHUA L. SIMMONS, Attorney at Law
13 601 Lexington Avenue
14 New York, New York 10022
15 212-446-4989
16 joshua.simmons@kirkland.com

Page 2

Page 4

1 APPEARANCES (Continued):

2
3 For the Defendant:
4 KEKER & VAN NEST LLP
5 BY: BRIAN L. FERRALL, Attorney at Law
6 BY: RYAN WONG, Attorney at Law
7 633 Battery Street
8 San Francisco, California 94111
9 415.391.5400
10 bferrall@kvn.com
11 rwong@kvn.com

12
13 ALSO PRESENT: Sean Grant, Video Operator
14 --oo--

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1	reveal -- basically mostly status commands and ones 2 for handling connections over the network to other 3 hosts, sort of a subset of the -- of the terminal 4 server commands.	14:27:53	1	bracket prompt?	14:33:02
5	Q And you said you chose the term "EXEC," 6 that's E-X-E-C; is that right?	14:28:26	2	A Router name, close angle bracket.	
7	A Yes.		3	Q Right.	
8	Q You chose that term, yes?		4	A Yes, I chose that.	
9	A Yes.		5	Q Okay. How did you come to choose that?	14:33:09
10	Q How did you come up with that term?	14:28:39	6	A Well, there were -- when you have multiple 7 devices on a network, one of the first things you 8 want to know if you're typing at something is to 9 what you are typing at. So that -- sort of the most 10 aesthetic choice was the -- was the name of the 11 device.	14:33:51
12	A Well, I had a number of possible ways of 13 describing it. I could have used "shell" after 14 the -- modeling it along the UNIX way of -- UNIX equivalent.		12	And the angle bracket was a nice visual 13 way of terminating -- you know, here's where your 14 type-in begins. Here's where the prompt ends, here's where the type-in begins.	14:34:19
15	From -- I decided EXEC in sort of -- you 16 know, inspired by the TOPS-20 command processor. 17 You know, calling it the command processor would 18 have been another possibility.	14:29:15	16	Q Had you ever seen the angle bracket used as a prompt in any other system?	
19	There was a number of possibilities that I 20 could have called it, what I could have called that 21 particular part of the software, and I ended up 22 choosing EXEC.	14:29:38	18	A I wasn't aware of any generally available 19 host -- general purpose timesharing that actually 20 that was the default, that was the prompt.	14:34:56
23	Q Now, were you responsible for determining 24 the prompt symbol on the interface?		21	Q I'm not sure what you mean by that.	
25	I'm sorry. Let me be clear.	14:30:26	22	But had you ever seen any system that used a close angle bracket as a prompt?	
Page 110			24	A No. TOPS-20 used an "at" sign and UNIX used a percent sign.	14:35:19
1	I'm talking about on the interface line, 2 there are symbols that precede the input point, such 3 as a hash sign, for example, right?	14:30:28	Page 112		
4	A So for -- I was responsible for choosing 5 the prompts for the command line interface, for the 6 CLI.	14:30:45	1	Q And you're not aware of any use of a hash sign as a prompt?	14:35:22
7	Q Okay. And tell me what those prompts are, 8 the various prompts that the Cisco CLI uses.		2	A Not to my recollection.	
9	A There are many right now. But at the time 10 there was the -- the unprivileged EXEC commands, and 11 that was the host name of the -- of the router or -- 12 of the router, followed by a close angle bracket.	14:31:09	4	Q You were familiar with UNIX in the mid 5 1980s, right?	14:36:18
13	There was a privileged mode, and it 14 changed that prompt to a hash mark.		6	A As a user of UNIX.	
15	And in the initial implementation of 16 configuration mode, there was no prompt.	14:31:55	7	Q And -- by the way, are you familiar with 8 Linux?	
17	Q Okay. How did you choose the hash prompt 18 for the privileged mode?		9	A Only as a user.	
19	A It was visually large and different than 20 the -- different -- just different than the 21 unprivileged EXEC prompt.	14:32:25	10	Q When did you first become familiar with 11 Linux?	14:36:38
22	Q Okay. How did you use the unprivileged 23 close angle bracket prompt?		12	A With Linux? I think I first heard mention 13 of it in the late '90s.	
24	A I don't understand your question.		14	Q Did Cisco come up with the nomenclature of 15 calling a mode "privileged," to your knowledge?	14:38:02
25	Q Did you choose to use the close angle	14:32:59	16	A I don't believe -- I don't believe Cisco came up with that terminology.	
			18	Q Let me turn to the current set of IOS CLI commands.	
			20	I don't expect an exact number, but do you 21 know approximately how many IOS CLI commands there are today?	14:38:54
			23	A I would have to guess. It is a -- it's a very large number.	
			24	Q Can you just give me a ballpark?	14:39:15

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1	Mr. Tjong. If you're okay with it, I'd like to just	18:14:53
2	do a stipulation across the case that both sides	
3	have the 30-day review and errata right for all	
4	transcripts regardless whether counsel puts it on	
5	the record at the depo as a two-way street.	18:15:04
6	MR. FERRALL: That's fine. I thought it	
7	existed as a matter of procedure anyway. So that's	
8	fine.	
9	MR. NEUKOM: I hope you're right, but glad	
10	to have the stipulation, even if it's unnecessary.	18:15:17
11	MR. FERRALL: Okay.	
12	MR. NEUKOM: Thanks very much.	
13	THE VIDEO OPERATOR: This concludes	
14	today's videotaped deposition of Mr. Kirk Lougheed.	
15	We're off the record at 6:15 p.m. Thank you.	18:15:25
16	(TIME NOTED: 6:15 p.m.)	
17	--oo--	
18		
19		
20		
21		
22		
23		
24		
25		
Page 186		
1	Q How did you choose the term -- the words	18:13:39
2	"timers basic" for this function?	
3	A I don't remember where "basic" came from.	
4	But using the keyword "timers" was my -- was my	
5	introduction, was my creation.	18:14:00
6	MR. NEUKOM: Counsel, I believe we're now	
7	beyond seven hours.	
8	MR. FERRALL: Okay. Well, I -- given	
9	Mr. Lougheed's tenure at Cisco, I thank him for his	
10	time, but I will say I think we deserve some more	18:14:22
11	time with him.	
12	But I understand seven hours is up and	
13	you're going to say enough is enough for today I	
14	take it; is that right?	
15	MR. NEUKOM: Certainly for today for the	18:14:31
16	sake of the witness. And we will respectfully	
17	disagree with the idea that counsel needs more than	
18	seven hours --	
19	MR. FERRALL: Okay.	
20	MR. NEUKOM: -- needs more than today.	18:14:41
21	But we can discuss that for another day.	
22	In the meantime, I should note for the	
23	record the witness reserves the right to review the	
24	transcript and make corrections.	
25	Brian, I'm not sure I did that for	18:14:51
Page 188		
1	I, KIRK LOUGHEED, do hereby declare under	
2	penalty of perjury that I have read the foregoing	
3	transcript; that I have made any corrections as	
4	appear noted, in ink, initialed by me, or attached	
5	hereto; that my testimony as contained herein, as	
6	corrected, is true and correct.	
7	EXECUTED this _____ day of _____,	
8	2015, at _____, _____.	
9	(City) (State)	
10	KIRK LOUGHEED	
11		
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1 I, the undersigned, a Certified Shorthand
2 Reporter of the State of California, do hereby
3 certify:

4 That the foregoing proceedings were taken
5 before me at the time and place herein set forth;
6 that any witnesses in the foregoing proceedings,
7 prior to testifying, were administered an oath; that
8 a record of the proceedings was made by me using
9 machine shorthand which was thereafter transcribed
10 under my direction; that the foregoing transcript is
11 a true record of the testimony given.

12 Further, that if the foregoing pertains to
13 the original transcript of a deposition in a Federal
14 Case, before completion of the proceedings, review
15 of the transcript [X] was [] was not requested.

16 I further certify I am neither financially
17 interested in the action nor a relative or employee
18 of any attorney or any party to this action.

19 IN WITNESS WHEREOF, I have this date
20 subscribed my name.

21
22 Dated: 11/25/2015

23
24 <%signature%>
25 CARLA SOARES

1 UNITED STATES DISTRICT COURT
2 NORTHERN DISTRICT OF CALIFORNIA
3 SAN JOSE DIVISION
4

5 CISCO SYSTEMS, INC. Case No.: 5:14-cv-05344-BLF (PSG)

6 Plaintiff,

7 v.

8 ARISTA NETWORKS, INC.

9 Defendants.

10
11
12 * HIGHLY CONFIDENTIAL - ATTORNEYS' EYES ONLY *

13 VIDEOTAPED DEPOSITION OF KIRK LOUGHEED

14 Palo Alto, California

15 Monday, April 4, 2016

16 Volume 2

17
18
19
20 Reported by:

21 LESLIE JOHNSON

22 RPR, CSR No. 11451

23 Job No.: 2285024

24 PAGES 190 - 399

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<p>1 January 26, 1983.</p> <p>2 BY MR. WONG:</p> <p>3 Q. So Mrs. Yates was the human resources 4 director for the Stanford electrical engineering 5 department as of January 1983, correct?</p> <p>6 A. Correct.</p> <p>7 Q. What was your understanding of what you 8 were signing when you signed the first page of 9 Exhibit 454?</p> <p>10 A. I believe my understanding at the time was 11 that if I came up with something patentable that 12 Stanford had the rights to it.</p> <p>13 Q. Turn to the next page of Exhibit 454, 14 please.</p> <p>15 MR. NEUKOM: And I'll object to that last 16 question as calling for a legal conclusion or 17 understanding.</p> <p>18 BY MR. WONG:</p> <p>19 Q. Are you there?</p> <p>20 A. I'm on the next page.</p> <p>21 Q. Can you -- strike that.</p> <p>22 What is the second page of Exhibit 454?</p> <p>23 A. It's titled personnel requisition, and it 24 is dated July 1st, 1980.</p> <p>25 Q. And is this personnel requisition for a</p>	<p>1 assembly language, correct?</p> <p>2 A. Correct.</p> <p>3 Q. And I note that this document appears to 4 show your social security number, Mr. Lougheed. So 5 I think it would be appropriate, at least for this 6 document, to mark that as "Highly Confidential."</p> <p>7 A. I would extremely appreciate that.</p> <p>8 MR. NEUKOM: I think it already is, isn't 9 it?</p> <p>10 MR. WONG: It is, the transcript?</p> <p>11 MR. NEUKOM: Oh, this document, the 12 transcript.</p> <p>13 MR. WONG: Well, just to make sure that -- 14 well, maybe not the transcript, but I think the 15 document should certainly be treated that way.</p> <p>16 MR. NEUKOM: So the document was produced 17 with a Bates stamp "Highly Confidential - Attorneys' 18 Eyes Only."</p> <p>19 MR. WONG: Oh, yes.</p> <p>20 MR. NEUKOM: But while we're at it, in an 21 excess of caution, on behalf of Mr. Lougheed and 22 also on behalf of Cisco, we will mark the 23 transcript, as Mr. Wong suggests, as "Highly 24 Confidential" and "Attorneys' Eyes Only." And we 25 ask the court reporter and the videographer to</p>
<p>Page 211</p> <p>1 particular job title?</p> <p>2 A. Yes.</p> <p>3 Q. Okay. Do you know the purpose of this 4 document on the second page of Exhibit 454?</p> <p>5 A. It was a requisition form prepared by 6 Ralph Gorin to hire me as a systems programmer.</p> <p>7 Q. And as of July 1st, 1980, were you already 8 employed by Stanford?</p> <p>9 A. I believe so.</p> <p>10 Q. So was this personnel requisition relating 11 to a new job that you were trying to get at 12 Stanford?</p> <p>13 A. This was the personnel requisition for my 14 first job at Stanford.</p> <p>15 Q. Approximately two-thirds of the way down 16 on the second page of Exhibit 454, do you see a 17 section called "Qualifications"?</p> <p>18 A. Yes, I do.</p> <p>19 Q. And the first sentence underneath 20 "Qualifications" says "Previous TOPS-20 assembly 21 language program experience is essential."</p> <p>22 Do you see that?</p> <p>23 A. Correct.</p> <p>24 Q. And you had, at the time of this document 25 in 1980, previous experience with the TOPS-20</p>	<p>Page 213</p> <p>1 please mark all copies accordingly.</p> <p>2 MR. WONG: Just so the record is clear, 3 I'm not suggesting that the entire transcript be 4 marked "Highly Confidential - Attorneys' Eyes Only."</p> <p>5 My concern, of course, is with your personal private 6 information.</p> <p>7 MR. NEUKOM: I'm not going to hold it 8 against you as a blanket concession. I think the 9 practice that we've gotten into, at least in some 10 depositions, is when we make a designation, we make 11 the designation apply to the whole transcript and 12 then have a reasonable conversation thereafter about 13 dedesignations.</p> <p>14 MR. WONG: Sure.</p> <p>15 BY MR. WONG:</p> <p>16 Q. Mr. Lougheed, can you turn to the page of 17 Exhibit 454 where the control number at the bottom 18 ends in 875.</p> <p>19 Are you there?</p> <p>20 A. I'm there.</p> <p>21 Q. And what is the document that ends in 22 control number 875?</p> <p>23 A. A copy of my résumé.</p> <p>24 Q. Okay. And it's a copy of a résumé as of 25 December 1st, 1982, correct?</p>

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7 (Pages 211 - 214)

HIGHLY CONFIDENTIAL - ATTORNEYS' EYES ONLY

<p>1 A. That's correct.</p> <p>2 Q. And is the information in this copy of 3 your résumé dated December 1st, 1982 accurate, to 4 the best of your knowledge?</p> <p>5 A. To the best of my knowledge, yes.</p> <p>6 Q. Can you take a second to skim the contents 7 and let me know if you see anything in there that is 8 erroneous.</p> <p>9 A. Okay. I have -- I have examined it.</p> <p>10 Q. And did you see anything in the résumé, 11 dated December 1st, 1982, in Exhibit 454 that needs 12 to be corrected for the record?</p> <p>13 A. No.</p> <p>14 Q. The résumé we're looking at in Exhibit 454 15 mentions DECSYSTEM-2060 computers.</p> <p>16 Do you see that?</p> <p>17 A. Yes.</p> <p>18 Q. In your prior deposition, Mr. Lougheed, 19 you referenced working on DECSYSTEM-20 systems while 20 you were employed at Stanford.</p> <p>21 Do you remember that?</p> <p>22 A. Yes.</p> <p>23 Q. Just so the record is clear, are the 24 DECSYSTEM-20 systems the same thing as the 25 DECSYSTEM-2060 computers that are referenced in the</p>	<p>1 A. Yes.</p> <p>2 Q. And under "Qualifications" about 3 two-thirds of the way down on the page ending in 4 control numbers 877 on Exhibit 454, do you see the 5 section titled "Qualifications"?</p> <p>6 A. Yes, I do.</p> <p>7 Q. And below that it says "Prior experience 8 in the details of the DECSYSTEM-20 computer system 9 and its operation is mandatory."</p> <p>10 Do you see that?</p> <p>11 A. I see that sentence.</p> <p>12 Q. What is the date of the personnel 13 requisition form ending in control numbers 877 on 14 Exhibit 454?</p> <p>15 A. There are a number of dates on this 16 document. There is a date needed, which was 17 1/16/83, which was apparently approved 1/10/83. 18 There's a -- maybe a few other dates floating around 19 here, but it's that time frame.</p> <p>20 Q. As of this time frame, January 1983, you 21 had extensive experience in the details of the 22 DECSYSTEM-20 computer system and its operation, 23 correct?</p> <p>24 A. Correct.</p> <p>25 Q. And you also had knowledge of TOPS-20 as</p>
<p>Page 215</p> <p>1 December 1st, 1982 résumé in Exhibit 454?</p> <p>2 A. They are -- they're the same thing.</p> <p>3 They're different model numbers of what is 4 essentially the same machine.</p> <p>5 Q. Thank you. If you turn to the page ending 6 in control numbers 877 in Exhibit 454.</p> <p>7 A. Yes.</p> <p>8 Q. This is another personnel requisition, 9 correct?</p> <p>10 A. It looks to be so, yes.</p> <p>11 Q. What is the difference between this 12 personnel requisition on the page ending in control 13 numbers 877 and the one that we were looking at 14 earlier on page ending with 873?</p> <p>15 MR. NEUKOM: Objection. The document 16 speaks for itself.</p> <p>17 THE WITNESS: The first was a personnel 18 requisition for the Stanford low overhead 19 time-sharing facility. This is a personnel 20 requisition for the electrical engineering 21 department's computer facilities.</p> <p>22 BY MR. WONG:</p> <p>23 Q. And the electrical engineering 24 department's computer facilities department, is that 25 the same thing as EE-CF?</p>	<p>Page 217</p> <p>1 of January of 1983, correct?</p> <p>2 A. Correct.</p> <p>3 Q. What is MACRO-20?</p> <p>4 A. That is the assembly language that was 5 used to do the systems programming for a 6 DECSYSTEM-20.</p> <p>7 Q. And as of January 1983, you were familiar 8 with MACRO-20 as well, correct?</p> <p>9 A. Correct.</p> <p>10 Q. You were also familiar with ethernet as of 11 January 1983, correct?</p> <p>12 A. Correct.</p> <p>13 Q. At the top of this same page that we're 14 looking at here ending in control numbers 877 of 15 Exhibit 454, there is a name Steve Hansen.</p> <p>16 Do you see that?</p> <p>17 A. I see that.</p> <p>18 Q. And Mr. Hansen was your supervisor in the 19 EE-CF department; is that correct?</p> <p>20 A. That's correct.</p> <p>21 Q. If you skip ahead to the page ending in 22 control numbers 883 in Exhibit 454. Let me know 23 when you're there.</p> <p>24 A. I'm there.</p> <p>25 Q. What is depicted on the page ending in</p>

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8 (Pages 215 - 218)

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1 control numbers 883 on Exhibit 454?
 2 A. An organizational chart of the electrical
 3 engineering computer facility.
 4 Q. And do you know approximately when this
 5 organizational chart was accurate in terms of year?
 6 Let me rephrase the question.
 7 What time frame does this organizational
 8 chart represent?
 9 A. I am not absolutely sure, but I suspect
 10 it's 1985.
 11 Q. And why do you suspect it's 1985?
 12 A. Looking at the people that are mentioned
 13 on the org chart, especially the systems
 14 programmers, I think it was in 1985 is when I hired
 15 some of those people.
 16 Q. And one of the systems programmers listed
 17 on this page is Greg Satz, correct?
 18 A. Correct.
 19 Q. And Mr. Satz later worked for Cisco,
 20 correct?
 21 A. Correct.
 22 Q. Mr. Satz didn't leave Stanford's
 23 employment at the same time you did; is that
 24 correct, Mr. Lougheed?
 25 A. That is correct.

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1 MR. NEUKOM: Objection. Mischaracterizes
 2 the document.
 3 BY MR. WONG:
 4 Q. You can answer.
 5 A. I don't remember.
 6 Q. On the second page of this letter, the
 7 page of the exhibit ending in control numbers 884,
 8 the second paragraph on that page?
 9 A. Uh-huh.
 10 Q. The last sentence says, "Mr. Lougheed has
 11 been one of, if not the person responsible for
 12 installing and maintaining most of the department's
 13 EtherTip systems that give the user -- users
 14 computer terminal access to all of the systems on
 15 the SUNet."
 16 Do you see that?
 17 A. I do.
 18 Q. Did I read that correctly?
 19 A. You read it correctly.
 20 Q. Would you agree that you were the person
 21 most responsible for installing and maintaining most
 22 of the department's EtherTIP systems?
 23 A. I think Mr. Hansen was being effusive.
 24 There were many other people that were -- I had
 25 responsibility for making sure that they worked.

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1 Q. If you turn to the page ending in control
 2 number 885 in the same exhibit.
 3 Are you there?
 4 A. Yes.
 5 Q. Now, this is how the document was produced
 6 to us, but I believe the second page of the letter
 7 that starts on control number 885 is actually the
 8 prior page. Could you take a moment, please, and
 9 skim the letter that starts on --
 10 A. Okay.
 11 Q. -- that page?
 12 A. I will -- I will read through it.
 13 Okay. I've read through it.
 14 Q. Can you please describe what is the
 15 document that starts on the page ending in control
 16 numbers 885 and ends on page 884 of Exhibit 454?
 17 A. It's a page -- it's a memo from Steve
 18 Hansen, my supervisor, to Beverly Yates, who was the
 19 HR person, basically recommending that my job
 20 classification be upgraded.
 21 Q. And the date of this letter is June 5th,
 22 1985?
 23 A. That's what it says.
 24 Q. Did you ask Mr. Hansen to write this
 25 recommendation for you?

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1 But there were many other people involved in the
 2 actual details of pulling cables and installing
 3 equipment and the like.
 4 Q. If you turn to the page of the same
 5 exhibit ending in control numbers 886, let me know
 6 when you're there.
 7 A. Yeah.
 8 Q. My question has to do with the first
 9 paragraph under the "Description" portion of this
 10 page starting with "The Electrical Engineering
 11 Computer Facility Administration."
 12 Do you see that paragraph?
 13 A. Yes.
 14 Q. The last paragraph -- strike that.
 15 The last sentence of that paragraph says,
 16 "At present, EE-CF has full responsibility for one
 17 DECSYSTEM-20 mainframe, six VAX-11/780
 18 super-minicomputers, and partial responsibility for
 19 four VAX-11/750 minicomputers."
 20 Do you see that?
 21 A. Uh-huh.
 22 Q. Did I read that correctly?
 23 A. Yes, you read that correctly.
 24 Q. And what are VAX-11/780
 25 super-minicomputers?

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9 (Pages 219 - 222)

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<p>1 A. A type of computer manufactured by the 2 Digital Equipment Corporation. 3 Q. And Digital Equipment Corporation is also 4 known as DEC, right? 5 A. Correct. 6 Q. And did you work with these DEC VAX 7 super-minicomputers while an employee at Stanford? 8 A. One of the -- actually, at least two of 9 the systems programmers were the ones that were 10 primarily responsible for making sure that those 11 systems ran properly. 12 Q. Was Mr. Satz one of those systems 13 programmers that -- 14 A. Yes. 15 Q. -- worked with the VAX system? 16 A. Yes. 17 Q. Is the answer the same for the VAX-11/750 18 super-minicomputers? 19 A. Yes. 20 Q. Did those VAX machines have a command-line 21 interface? 22 MR. NEUKOM: Objection. Vague. 23 BY MR. WONG: 24 Q. Did the VAX-11/780 systems have a 25 command-line interface?</p>	<p>1 Q. And the first full sentence of that bullet 2 point says, "Supervised a computer science 3 department electronics design engineer in the 4 hardware debugging of a DEC-20 to ethernet 5 interface." 6 The next sentence says, "I also wrote the 7 interface's control microcode, the hardware 8 diagnostics, and the operating system support for 9 the device." 10 Do you see that? 11 A. I do. 12 Q. Is that referring to the EtherTIP 13 software? 14 A. No. 15 Q. What is that referring to? 16 A. That's referring to the Massbus-Ethernet 17 Interface Subsystem. 18 Q. And that's also reflected with the acronym 19 MEIS, correct? 20 A. Yes. 21 Q. Did Cisco use any of the software for the 22 MEIS? 23 A. No. 24 Q. Can you go to the page ending with Bates 25 No. 888 in Exhibit 454.</p>
<p>1 MR. NEUKOM: Objection. Vague. 2 THE WITNESS: Yes. 3 BY MR. WONG: 4 Q. Were you familiar with how the VAX 5 command-line interface operated? 6 A. VAX is the name of a piece of hardware 7 that would run an operating system. 8 Q. Thank you. 9 What is the operating system that the VAX 10 hardware ran? 11 A. At Stanford there were two possibilities, 12 something called VAX VMS, and there was also 13 Berkeley UNIX. 14 Q. Is Berkeley UNIX the same as BSD? 15 A. Yes. 16 Q. Were you familiar with the VAX VMS 17 command-line interface? 18 A. No. 19 Q. Were you familiar with the Berkeley UNIX 20 command-line interface? 21 A. Yes. 22 Q. The last bullet point on the page ending 23 in 886 of Exhibit 454, do you see that? It starts 24 with "Supervised a computer science department." 25 A. Yes, I see that paragraph.</p>	<p>1 A. Uh-huh. Yes. I'm on that page. 2 Q. The first bullet point, or I guess the 3 only bullet point on this page starts with "Acted as 4 Stanford contact." 5 Do you see that? 6 A. Yes, I see that paragraph. 7 Q. Is it true that you acted as Stanford 8 contact with DEC for field testing of two new 9 releases of the DEC-20 operating system? 10 A. Let me finish the paragraph so I can 11 establish context. 12 Q. Sure. Please take your time. 13 A. Okay. I've read the paragraph. Your 14 question is? 15 Q. Is it true you that you acted as the 16 Stanford contact with Digital Equipment Corporation 17 for field testing two new releases of the DEC-20 18 operating system? 19 A. Yes. 20 Q. Is the DEC 20 operating system the same 21 thing as the TOPS-20 operating system? 22 A. Yes. 23 Q. Further down on this same page ending with 24 control numbers 888 on Exhibit 454, there's a 25 section called "Special Skills Knowledge or Training</p>

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Page 226

10 (Pages 223 - 226)

HIGHLY CONFIDENTIAL - ATTORNEYS' EYES ONLY

1 parser worked in the SUMEX software that Mr. Yaeger
2 wrote prior to July of 1986?
3 A. I would have to say yes.
4 Q. If you turn to page 61 of Exhibit 455.
5 And by 61, I'm referring to the pages that are shown
6 at the top right of the pages, not the control
7 number. And I'll read the control number as well,
8 just for clarification. It's the page ending with
9 control number 64.
10 A. Okay. I'm on the page you mentioned.
11 Q. Okay. At the top of the page ending in
12 control number 64 of Exhibit 455 says "TIP user
13 interface."
14 Do you see that?
15 A. Yes.
16 Q. What does TIP stand for?
17 A. Terminal interface processor.
18 Q. And below that it says "Appendix 3 TIP
19 user interface."
20 Do you see that?

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12 (Pages 231 - 234)



Page 235

13 (Pages 235 - 238)

Page 239

The figure consists of two side-by-side horizontal bar charts. Both charts have 10 categories on the x-axis, labeled 1 through 10. The y-axis represents the number of samples, ranging from 0 to 1000. In the left chart, category 1 has the highest count at approximately 800, while other categories have much lower counts, mostly below 100. In the right chart, all categories have nearly identical counts, each around 100.

Category	Left Chart (approx.)	Right Chart (approx.)
1	800	100
2	100	100
3	100	100
4	100	100
5	100	100
6	100	100
7	100	100
8	100	100
9	100	100
10	100	100

14 (Pages 239 - 242)

The figure consists of two side-by-side horizontal bar charts. The left chart contains 10 bars, and the right chart contains 10 bars, both representing data across 20 categories. The bars are black and have varying widths, indicating the magnitude of the data for each category. The bars are arranged in descending order of width within each chart.

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The figure consists of two side-by-side horizontal bar charts. The left chart displays 500 samples, while the right chart displays another 500 samples. Each chart features 20 distinct horizontal bars of varying lengths, rendered in black against a white background. The bars are arranged in a descending order of length from top to bottom within each panel.

1

The figure consists of two side-by-side horizontal bar charts. Both charts have 15 bars each. The bars are dark gray with thin white outlines. In both charts, the first bar is the tallest, followed by the second bar which is also very tall. The remaining 13 bars in each chart are of varying heights, generally decreasing as they move upwards.

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The figure consists of two side-by-side panels, each containing 20 horizontal bars. The bars are dark gray and are preceded by a small black square. In the left panel, the bars have varying lengths, with some being very short and others reaching near the top. In the right panel, the bars also vary in length but generally appear slightly longer than those in the left panel. The bars are arranged vertically from top to bottom.



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45 (Pages 363 - 366)

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<p>1 Mr. Lougheed.</p> <p>2 Now, those two sentences that you read</p> <p>3 from the Stanford Ethertip User Guide marked as</p> <p>4 Exhibit 36 and the Cisco Systems ASM/AGS User Manual</p> <p>5 marked as Exhibit 476 are exactly the same, correct?</p> <p>6 A. Yes. I wrote both sentences.</p> <p>7 Q. And so Cisco copied those two sentences</p> <p>8 from the Stanford guide marked as Exhibit 36 and put</p> <p>9 them into the Cisco guide marked as Exhibit 476,</p> <p>10 correct?</p> <p>11 MR. NEUKOM: Objection. Asked and</p> <p>12 answered a couple times now.</p> <p>13 MR. WONG: I'm asking about those two</p> <p>14 particular sentences.</p> <p>15 MR. NEUKOM: Yeah. And before you asked a</p> <p>16 blanket question and you didn't like his answer,</p> <p>17 which I thought was a pretty darn good one. So you</p> <p>18 decided to just keep him in the room --</p> <p>19 MR. WONG: Counsel.</p> <p>20 MR. NEUKOM: Look, you responded to my</p> <p>21 objection. You wanted to engage me. So I'll</p> <p>22 explain my objection. If you don't want me piping</p> <p>23 up, that's fine. Just let me make objections for</p> <p>24 the record.</p> <p>25 Now you're asking him the exact same</p>	<p>1 MR. WONG: I think it's our understanding</p> <p>2 that all witnesses can have 30 days or something.</p> <p>3 MR. NEUKOM: By stipulation.</p> <p>4 MR. WONG: Great.</p> <p>5 THE VIDEOGRAPHER: This concludes today's</p> <p>6 videotaped deposition of Mr. Kirk Lougheed. We're</p> <p>7 off the record at 4:37 p.m.</p> <p>8 (TIME NOTED: 4:37 P.M.)</p> <p>9</p> <p>10</p> <p>11</p> <p>12</p> <p>13</p> <p>14</p> <p>15</p> <p>16</p> <p>17</p> <p>18</p> <p>19</p> <p>20</p> <p>21</p> <p>22</p> <p>23</p> <p>24</p> <p>25</p>
<p style="text-align: right;">Page 395</p> <p>1 question after having had the fourth employee of</p> <p>2 Cisco, Mr. Lougheed, who is now here at almost 5:00</p> <p>3 reading aloud from documents. And you asked him the</p> <p>4 same question again to see if you can get a</p> <p>5 different answer. So go for it. This is starting</p> <p>6 to feel increasingly not very respectful of this</p> <p>7 witness's time.</p> <p>8 BY MR. WONG:</p> <p>9 Q. Do you want me to read the question again?</p> <p>10 I'll read the question again.</p> <p>11 A. That would be fine.</p> <p>12 Q. Cisco copied those two sentences that you</p> <p>13 just read aloud into the record for its user manual</p> <p>14 marked as Exhibit 476 from the Stanford user manual</p> <p>15 marked as Exhibit 36, correct?</p> <p>16 A. I wrote both manuals.</p> <p>17 MR. WONG: I have no further questions.</p> <p>18 THE VIDEOGRAPHER: This concludes today's</p> <p>19 videotaped deposition of Mr. Kirk --</p> <p>20 MR. NEUKOM: Oh, I'm sorry to interrupt.</p> <p>21 On behalf of Mr. Lougheed, he reserves the</p> <p>22 right to review an errata of the transcript. I</p> <p>23 don't know, Ryan, if we've been doing this by</p> <p>24 stipulation for all witnesses, even if it's not put</p> <p>25 on the record.</p>	<p style="text-align: right;">Page 397</p> <p>1 DECLARATION UNDER PENALTY OF PERJURY</p> <p>2</p> <p>3 I, KIRK LOUGHEED, the witness herein,</p> <p>4 declare under penalty of perjury that I have read the</p> <p>5 foregoing in its entirety; and that the testimony</p> <p>6 contained therein, as corrected by me, is a true and</p> <p>7 accurate transcription of my testimony elicited at said</p> <p>8 time and place.</p> <p>9</p> <p>10 Executed this _____ day of _____ 2016, at</p> <p>11 _____, _____.</p> <p>12 (City) (State)</p> <p>13</p> <p>14</p> <p>15</p> <p>16</p> <p>17 _____</p> <p>18 KIRK LOUGHEED</p> <p>19</p> <p>20</p> <p>21</p> <p>22</p> <p>23</p> <p>24</p> <p>25</p>

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53 (Pages 395 - 398)

1 REPORTER'S CERTIFICATION
2 I, Leslie Johnson, a Certified Shorthand
3 Reporter of the State of California, do hereby certify:
4 That the foregoing proceedings were taken
5 before me at the time and place herein set forth; that
6 any witnesses in the foregoing proceedings, prior to
7 testifying, were administered an oath; that a record of
8 the proceedings was made by me using machine shorthand
9 which was thereafter transcribed under my direction;
10 that the foregoing transcript is a true record of the
11 testimony given.
12 Further, that if the foregoing pertains to
13 the original transcript of a deposition in a Federal
14 Case, before completion of the proceedings, review
15 of the transcript [] was [] was not requested.
16 I further certify I am neither financially interested in
17 the action nor a relative or employee of any attorney or
18 any party to this action.
19 IN WITNESS WHEREOF, I have this date
20 subscribed my name.
21 Dated: April 19, 2016
22
23 
24 LESLIE JOHNSON
25 CSR No. 11451, RPR, CCRR

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UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA
SAN JOSE DIVISION

- - - - - x Case No.
: 5:14-cv-05344-BLF (PSG)
:
CISCO SYSTEMS, INC., :
:
Plaintiff, :
:
vs. :
:
ARISTA NETWORKS, INC., :
:
Defendant. :
:

VIDEOTAPED DEPOSITION OF GREG SATZ

March 23, 2016

HIGHLY CONFIDENTIAL - ATTORNEYS' EYES ONLY

VOLUME 1

Reported by

Brooke R. Bohr

CSR No. 753

Job No 2272380

Pages 1 - 168

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<p>1 "Stanford Ethertip/Gateway User and Configuration 2 Guide."</p> <p>3 A. Yeah.</p> <p>4 Q. Had you ever seen this before?</p> <p>5 A. I'm sure I have. I don't have a 6 recollection of it, and I don't remember this date 7 at all. This is a pretty late date.</p> <p>8 Q. Do you know Glenn Truitt?</p> <p>9 A. I do.</p> <p>10 Q. What did he work on at Stanford?</p> <p>11 A. I no longer remember. I do know that 12 he had his hands in this software, but a lot of 13 people did. Jeffrey Mobile, Benji Levy. This 14 was -- this code was a lot of research work. And 15 so if one of the graduate students felt there was 16 an application they wanted to experiment with, 17 this really was the beginning of what then became 18 the multi-protocol router and Cisco's router. 19 So -- oh, yeah, there's some really old -- really 20 old stuff here.</p> <p>21 Q. Did you become familiar with some of 22 the commands from this device?</p> <p>23 A. Yes.</p> <p>24 Q. Yeah? How did you become familiar with 25 it?</p>	<p>1 Q. This was a -- begins a section called 2 "privileged commands." Do you see that?</p> <p>3 A. Um-hum. I do.</p> <p>4 Q. And were you aware of a privileged mode 5 in this -- in the TIP Gateway?</p> <p>6 A. Sure.</p> <p>7 Q. Explain what was the purpose of the 8 privilege mode there.</p> <p>9 A. It mimicked the TOPS-20 style of 10 parsing, and it -- there were commands that people 11 would use to just have the device do what it does 12 day-to-day, and there were commands that 13 administrators or users who needed to maintain the 14 device in the network would use. And so privilege 15 commands were the latter set, and TOPS-20 had a 16 very similar model.</p> <p>17 Q. And this document says in the -- I 18 guess in the second sentence, it's -- or I'll read 19 the first sentence also: There's a second set of 20 commands available to the Ethertip user. The two 21 command levels are disjoint. That is, the 22 privileged mode is not a superset of the normal 23 mode.</p> <p>24 Do you see that?</p> <p>25 A. Um-hum.</p>
<p>Page 26</p> <p>1 A. Well, we were users of these devices 2 when I -- the state of the art back then, before 3 there were all of these computers and laptops, is 4 you used a basic terminal with RS232 into some 5 device that converted the commands into network 6 protocols and used that across the network to talk 7 to mainframes. That was state of the art.</p> <p>8 So on my desk at Stanford and at SRI 9 was these computers that were just terminals. 10 They -- all they did was take a capture of 11 keypress and generate a character. And that 12 character was shipped across the network 13 somewhere. And the computer would get that 14 character, do something with it, and ship you back 15 the output.</p> <p>16 So that's what a TIP was, terminal 17 interface processor. It allowed you to take an 18 RS232 terminal and sit on the network without 19 talking to the computer directly. And I think 20 Kirk was responsible for gluing the TIP and the 21 Gateway software together, because they were two 22 different software bases.</p> <p>23 Q. So if I could ask you to turn to Page 6 24 of that Exhibit 36.</p> <p>25 A. Okay.</p>	<p>Page 28</p> <p>1 Q. So what did you understand to be the 2 purpose of the normal mode, then, as opposed to 3 the privileged mode?</p> <p>4 A. Day-to-day users don't need privileged 5 mode. They go in, they make their connections, 6 they do what they do to get their work done, and 7 that's the extent of their relationship to the 8 software.</p> <p>9 The people who administer the device 10 and who might need to add a new feature or upgrade 11 the software would have to use privileged mode. 12 And it is a complete separate set of functions.</p> <p>13 And in particular for the programmers, 14 they -- you know, they made a mistake, and they've 15 got to go figure out why something is not working, 16 especially for research work.</p> <p>17 Q. I want to ask about some of the 18 commands that follow here on Page 6. 19 "Access.lists," I see under 3.1.</p> <p>20 A. Um-hum.</p> <p>21 Q. Was that a command you were familiar 22 with?</p> <p>23 A. That's a very common and important 24 command.</p> <p>25 Q. What is an access.list command?</p>

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8 (Pages 26 - 29)

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<p>1 A. It gave the device the ability to 2 decide what data flows it would allow through or 3 prevent, and/or connections that people could make 4 to the box. So if, for example, your department 5 wasn't allowed to use this particular box, we 6 could create an access.list so you couldn't use 7 it.</p> <p>8 Q. Was -- to your knowledge, was 9 access.list used in any other operating systems or 10 softwares, software?</p> <p>11 MR. NEUKOM: Objection; foundation.</p> <p>12 THE WITNESS: I can't say I've ever seen 13 access.list before this application.</p> <p>14 Q. BY MR. FERRALL: The next command here 15 is -- it says "arp.table." What is that, do you 16 know?</p> <p>17 A. Yes, address resolution protocol. So 18 that was the mechanism that computers used to 19 discover each other's -- I'm going to get really 20 boring here -- 48-bit ethernet address and match 21 it to their 32-bit IP address.</p> <p>22 Q. And was the address resolution protocol 23 something that was known outside of the Stanford 24 network context?</p> <p>25 A. Oh, yes, it was a standard.</p>	Page 30	<p>1 just some here I don't -- I have no recollection 2 of.</p> <p>3 Q. Had you ever heard of or used show 4 commands in any context before you went to Cisco?</p> <p>5 A. Every computer has show commands. I 6 mean every operating system had used the word 7 "show" as a way to convey internal information 8 outward.</p> <p>9 Q. What about banner, which, by the way, 10 I see at the bottom of Page 8 of Exhibit 36. But 11 my question is more general, which is were you 12 aware of a banner command before you went to 13 Cisco?</p> <p>14 A. I don't remember. I had used, by then, 15 anywhere from 15 to 20 different operating 16 systems. And so I -- banner doesn't stand out as 17 anything.</p> <p>18 Q. If I could ask you to look at Page 13 19 of this exhibit, Exhibit 36. Do you see on that 20 page there are a number of commands that have in 21 brackets the word "no" before the command?</p> <p>22 A. Um-hum. I do.</p> <p>23 Q. Do you know what that means?</p> <p>24 A. It is an optional keyword.</p> <p>25 Q. And what does it do? What function</p>	Page 32
<p>1 MR. NEUKOM: Objection; lack of foundation, 2 calls for speculation.</p> <p>3 Q. BY MR. FERRALL: Now, don't worry, I'm 4 not going to go through every command in here.</p> <p>5 A. You'll need coffee.</p> <p>6 MR. NEUKOM: And I think, actually, Brian, I 7 didn't -- you said a little while back that the 8 next -- just to make sure the transcript is clean, 9 after discussing access.list, you said the next 10 one listed is arp.table.</p> <p>11 MR. FERRALL: That's -- you're right.</p> <p>12 That's not correct. That was -- I skipped one.</p> <p>13 MR. NEUKOM: Okay.</p> <p>14 MR. FERRALL: Thank you.</p> <p>15 Q. BY MR. FERRALL: Were you familiar with 16 show commands used in the Stanford TIP?</p> <p>17 A. Yeah. I didn't do a lot of work with 18 the TIP, so I can't say I have a great familiarity 19 with this version of the software.</p> <p>20 Q. Okay.</p> <p>21 A. By the time I spent time with the 22 software, it had been rewritten and the parser, 23 which is the interesting part for this discussion, 24 had been changed. So a lot of these commands are 25 almost like looking at them new again. There's</p>	Page 31	<p>1 does it serve?</p> <p>2 A. Excuse me. Optional keywords just 3 allow you to include them or not include them. So 4 you -- I don't know if you're asking me what it 5 means in relationship to each command or the 6 generic optional keyword.</p> <p>7 Q. Well --</p> <p>8 A. There's layers.</p> <p>9 Q. Okay. Fair enough.</p> <p>10 Is there an overall purpose of -- if 11 you wanted -- if you decided to include "no" as 12 an option before these commands, is there a 13 generic -- general way of describing what that 14 would do?</p> <p>15 MR. NEUKOM: Objection; vague and compound.</p> <p>16 THE WITNESS: It is a negation in this 17 particular usage. This, again, gets back to the 18 mechanics or the API versus the content. So the 19 confusion is I'm going to -- as a somewhat of a 20 programmer or someone who has worked at the 21 building of this, I'm more coming from a here is 22 the mechanical word. An optional keyword is an 23 optional keyword. What it actually means is going 24 to be interpreted by the code that is written. So 25 in this particular case, the "no" in front would</p>	Page 33

9 (Pages 30 - 33)

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<p>1 MR. NEUKOM: Objection; vague and compound.</p> <p>2 THE WITNESS: They would augment the command</p> <p>3 set, the features, and there was, typically, a</p> <p>4 user interface component to it, like modifying the</p> <p>5 menu commands on your laptops today.</p> <p>6 Q. BY MR. FERRALL: And was there -- would</p> <p>7 they, typically, build upon existing keywords?</p> <p>8 MR. NEUKOM: Same objections, and calls for</p> <p>9 speculation.</p> <p>10 THE WITNESS: Depending on the feature set.</p> <p>11 If it was an extension of an existing feature set</p> <p>12 or if it was brand new. I mean, as you described</p> <p>13 a tree, those trees can be rearranged and</p> <p>14 augmented or removed.</p> <p>15 MR. FERRALL: Okay. Why don't we take our</p> <p>16 first break. We've been going for about an hour.</p> <p>17 THE WITNESS: Okay.</p> <p>18 THE VIDEOGRAPHER: The time is 11:12 a.m.</p> <p>19 Off the record.</p> <p>20 (Recess taken.)</p> <p>21 THE VIDEOGRAPHER: The time is 11:23 a.m.</p> <p>22 On the record.</p> <p>23 Q. BY MR. FERRALL: Mr. Satz, are you</p> <p>24 familiar with any use of a "clear" command from</p> <p>25 either TOPS-20 or early operating systems?</p>	<p>1 A. Um-hum.</p> <p>2 Q. And a normal mode, I think. What were</p> <p>3 the other modes of TOPS-20 that you could recall?</p> <p>4 A. They weren't necessarily modes, as --</p> <p>5 you might think of them as different parse trees,</p> <p>6 to use your tree analogy. They were command sets</p> <p>7 that would be made available or not available</p> <p>8 depending on, in the case of privilege mode,</p> <p>9 having a password. So you had to know the secret</p> <p>10 code to then enable the parse tree that was called</p> <p>11 privilege mode.</p> <p>12 Q. Was there a different prompt</p> <p>13 indicator --</p> <p>14 A. There is.</p> <p>15 Q. -- for the different command sets that</p> <p>16 were available, if you will?</p> <p>17 A. Yes. And TOPS-20 -- and I think VMS</p> <p>18 used the same mode -- had a subcommand mode. So</p> <p>19 you could -- I don't know if you would put a comma</p> <p>20 at the end of the line or if it was just a -- it</p> <p>21 knew you were going into the mode. I can't -- I</p> <p>22 don't remember anymore. But it would then</p> <p>23 double-prompt you. So if your prompt was, like, a</p> <p>24 dollar sign, it would give you two dollar signs to</p> <p>25 know you were in the subcommand mode. Or in the</p>
<p>Page 46</p> <p>1 A. I can't say I recall that.</p> <p>2 Q. Okay.</p> <p>3 A. There could have been, but there's a</p> <p>4 check through the documentation better than my</p> <p>5 memory.</p> <p>6 Q. Okay. How about a "set" command?</p> <p>7 A. I'm pretty sure VMS had set, as well as</p> <p>8 TOPS-20.</p> <p>9 Q. Now, you're aware that Cisco later used</p> <p>10 show commands, right?</p> <p>11 A. (Witness nods head.)</p> <p>12 Q. What was the purpose of the Cisco show</p> <p>13 commands, in general? I know there were many.</p> <p>14 MR. NEUKOM: Objection; vague and compound.</p> <p>15 THE WITNESS: To take data from inside the</p> <p>16 software and present it to a user.</p> <p>17 Q. BY MR. FERRALL: Were you aware of a</p> <p>18 feature of TOPS-20 called "exec," E-X-E-C?</p> <p>19 A. Um-hum. Yes.</p> <p>20 Q. What was that?</p> <p>21 A. The exec was the piece of software in</p> <p>22 the operating system who interacted with the user</p> <p>23 and contained the parser.</p> <p>24 Q. We talked earlier about a privilege</p> <p>25 mode in TOPS-20.</p>	<p>Page 48</p> <p>1 privilege mode it would change the prompt from a</p> <p>2 single dollar sign to, like, an "at" sign or a</p> <p>3 "pound" sign. It would give you indication. And</p> <p>4 usually there were ways to configure that so you</p> <p>5 could tell it what you wanted it to do.</p> <p>6 Q. And I think you said that you would</p> <p>7 need a password, for example, to enter the</p> <p>8 privilege mode?</p> <p>9 A. In the ether TIP or the router software</p> <p>10 that Cisco used. In TOPS-20 it was whether you</p> <p>11 had a capability, you had an account that was</p> <p>12 privileged.</p> <p>13 Q. Was there a command or a -- something</p> <p>14 you would enter in order to switch modes in</p> <p>15 TOPS-20?</p> <p>16 A. That was "enable."</p> <p>17 Q. "Enable" was the command?</p> <p>18 A. (Witness nods head.)</p> <p>19 Q. Okay.</p> <p>20 A. The magic word. All these commands are</p> <p>21 are just a magic word that you agree will do a</p> <p>22 function.</p> <p>23 Q. Do you know, was there a configuration</p> <p>24 mode in TOPS-20 to your knowledge?</p> <p>25 A. TOPS-20 had the benefit of files. So,</p>

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13 (Pages 46 - 49)

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1 Exhibit 405 is a one-page document
 2 marked CSI-CLI-00746924.
 3 Exhibit 406 begins CSI-CLI-01828732,
 4 and for this document I'll read the last number
 5 because I think we're all unclear whether it is
 6 one versus multiple documents. This ends with
 7 Bates stamp CSI-CLI-01828783.
 8 Exhibit 407 begins Bates stamp
 9 CSI-CLI-01295215.
 10 And Exhibit 408 begins
 11 CSI-CLI-01295181.
 12 MR. NEUKOM: Thanks all.
 13 MR. FERRALL: Agreed. Thank you.
 14 (The deposition concluded at 3:31 p.m.)
 15 -oo0oo-

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1 R E P O R T E R ' S C E R T I F I C A T E
 2
 3
 4 I, BROOKE R. BOHR, a Notary Public in
 5 and for the State of Idaho, do hereby certify:
 6 That prior to being examined, the
 7 witness named in the foregoing deposition was by
 8 me duly sworn to testify the truth, the whole
 9 truth, and nothing but the truth;
 10 That said deposition was taken down by
 11 me in shorthand at the time and place therein
 12 named and thereafter reduced into typewriting
 13 under my direction, and that the foregoing
 14 transcript contains a full, true, and verbatim
 15 record of the said deposition.
 16 I further certify that I have no
 17 interest in the event of the action.
 18 WITNESS my hand and seal March 30, 2016.
 19
 20
 21
 22
 23 <%signature%>
 24 Brooke R. Bohr
 25 CSR No. 753

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1 V E R I F I C A T I O N
 2 I declare under penalty of perjury
 3 under the laws that the foregoing is
 4 true and correct.
 5
 6 Executed on _____, 20____,
 7 at _____, _____.

8
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WITNESS SIGNATURE

13
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